

REGIONAL FLOOD CONTROL DISTRICT



Gale Wm. Fraser, II, P.E.
General Manager/Chief
Engineer

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December 14, 2006

Mary M. Wheeler
City of Las Vegas Planning and Development
731 S. 4th Street
Las Vegas, NV 89101

Dear Ms. Wheeler:

On December 14, 2006 the Regional Flood Control District Board of Directors held a public hearing and unanimously adopted a Master Plan Amendment for the Meadows Alta Parallel Planning Area. The Master Plan Amendment was performed in accordance with NRS 543.597.

NRS 543.597, subsection 6, states in part, if a proposed amendment to the master plan is adopted unanimously by the board, and by the governing body of the local government in whose jurisdiction will be located the structures necessary to carry out the purposes of the amendment, after a public hearing by each, the amendment becomes effective and no other hearing or approval is required by any other board or commission, including those responsible for decisions relating to planning or zoning.

A copy of the District agenda item, including the related backup material is enclosed with this letter for your use in holding a public hearing to consider adoption of this amendment.

If I can be of further assistance in this matter, please contact me at 455-3139.

Sincerely,

Gale Wm. Fraser, II, P. E.
General Manager/Chief Engineer

Enclosure

Cc w/enc.: Randy Fultz, CLV, Assistant City Engineer
Jorge Cervantes, City Engineer
Greg McDermott, CLV, Engineering Project Manager
Robert Welch, Engineering Project Manager
Barbara Jo Ronemus, City Clerk

P:\Staff Inbox\Deanna\Master Plan letters\121406 MPA Meadows Alta Parallel-letter.doc

**CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT**

AGENDA ITEM

SUBJECT:

**MASTER PLAN AMENDMENT
MEADOWS ALTA PARALLEL PLANNING AREA**

THIS IS A PUBLIC HEARING

RECOMMENDATION SUMMARY

STAFF:

Approve and recommend that the Board find the Master Plan Amendment sets for the most effective structural and regulatory means for correcting existing problems of flooding in the area and dealing with the probable effects of future development (NRS 543.590[3]). Also, subject to approval from the City of Las Vegas City Council.

TECHNICAL ADVISORY: Follow staff recommendation.

CITIZENS ADVISORY: Follow staff recommendation.

**RFCD AGENDA
ITEM #15
DATE: 12/14/06**

**CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT
AGENDA ITEM**

SUBJECT:
MASTER PLAN AMENDMENT FOR THE MEADOWS ALTA PARALLEL PLANNING AREA

PETITIONER:
CITY OF LAS VEGAS

RECOMMENDATION OF PETITIONER:
IT IS RECOMMENDED THAT THE CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT APPROVE THE MASTER PLAN AMENDMENT FOR THE MEADOWS ALTA PARALLEL SYSTEM PLANNING AREA.

FISCAL IMPACT: None by this action.

BACKGROUND:

This Amendment proposes revisions to the Meadows Alta Parallel facility and incorporates associated conveyance facilities in the Clark County Regional Flood Control District (CCRFCD) 2002 Master Plan Update (MPU). Facilities in the 2002 MPU identified as MEAP 0000 and MEAP 0172 are proposed to be eliminated at a substantial cost savings. New regional drainage facilities are proposed for the following areas:

- Expansion of the Rainbow Detention Basin
- Lorenzi Street – Alta Drive to the Rainbow Detention Basin
- Jones Boulevard (south) – Alta Drive to Evergreen Avenue
- Alta Drive – Pipe Capacity replacement between Easy Street and Decatur Boulevard


The primary purpose of this project is to reduce a regional flooding problem in the area between Alta Drive and Evergreen Avenue where there are low points in Digger Street, Cactus Lane and Brush Street. The proposed facilities provide a more cost effective and constructible project while adding protection to the established neighborhoods between Alta Drive and Evergreen Avenue.

The Amended facilities are approximately \$5.1 million less than the 2002 MPU Facilities in 2002 dollars. Inflating the MPA cost estimate according to the procedure for the TYCP yields a cost of

TAC AGENDA ITEM # 09 Date: 11/30/06	RFCD AGENDA ITEM # 15 Date: 12/14/06
CAC AGENDA ITEM # 09 Date: 12/04/06	

\$9.0 million in 2006 dollars. Compared to the current engineer's cost estimate for the MPU facilities the MPA is \$7.4 million less.

Respectfully submitted,


Charles Kajkowski, Director
Department of Public Works

TAC AGENDA ITEM # 09 Date: 11/30/06	RFCD AGENDA ITEM # 15 Date: 12/14/06
CAC AGENDA ITEM # 09 Date: 12/04/06	

Regional Flood Control District
AGENDA ITEM DEVELOPMENT

Staff Discussion:

Date: 11/14/06

**MASTER PLAN AMENDMENT
MEADOWS ALTA PARALLEL (PLANNING AREA) SYSTEM**

This Amendment proposes revisions to the Meadows Alta Parallel. Facilities in the 2002 MPU identified as MEAP 0000 and MEAP 0172 are proposed to be eliminated at a substantial cost savings. New regional drainage facilities are proposed for the following areas:

- Expansion of the Rainbow Detention Basin
- Lorenzi Street – Alta Drive to the Rainbow Detention Basin
- Jones Boulevard (south) – Alta Drive to Evergreen Avenue
- Alta Drive – Pipe Capacity replacement between Easy Street and Decatur Boulevard

The primary purpose of this project is to reduce a regional flooding problem in the established neighborhoods between Alta Drive and Evergreen Avenue. The proposed facilities provide a more cost effective and constructible project while adding protection to the established neighborhoods between Alta Drive and Evergreen Avenue.

Staff Recommendation:

Approve and recommend that the Board find the Master Plan Amendment sets forth the most effective structural and regulatory means for correcting existing problems of flooding in the area and dealing with the probable effects of future development (NRS 543.590[3]). Also, subject to approval from City of Las Vegas City Council.

Discussion by Technical Advisory Committee:

AGENDA
#09 Date: 11/30/06

Recommendation:

Follow staff recommendation.

Discussion by Citizens Advisory Committee:

AGENDA
#09 Date: 12/04/06

Recommendation:

Follow staff recommendation.

Amendment to the 2002 Master Plan Update For Meadows Alta Parallel Facility

Submitted by:



**Prepared by:
City of Las Vegas
Department of Public Works
Engineering Planning Division
Flood Control Section**

October 23, 2006

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I. INTRODUCTION

This Amendment proposes revisions to the Meadows Alta Parallel facility and incorporates associated conveyance facilities in the Clark County Regional Flood Control District (CCRFCDD) 2002 Master Plan Update (MPU). Facilities in the 2002 MPU identified as MEAP 0000 and MEAP 0172 are proposed to be eliminated. New regional drainage facilities are proposed for the following areas:

- Expansion of the Rainbow Detention Basin
- Lorenzi Street -- Alta Drive to the Rainbow Detention Basin
- Jones Boulevard (south) -- Alta Drive to Evergreen Avenue
- Alta Drive, Pipe Capacity Replacement - Easy Street to 600 feet west of Decatur Boulevard

The primary purpose of this project is to reduce a regional flooding problem in the area between Alta Drive and Evergreen Avenue where there are low points in Digger Street, Cactus Lane and Brush Street.

II. BACKGROUND

The City of Las Vegas (CLV) contracted with MWH Americas, Inc. (MWH) in December 2003 to provide engineering and design services for the design of the Meadows Alta Parallel facility.

MWH prepared construction drawings for a storm drain system in Alta Drive that would replace the existing Meadows Alta facilities (MEAL 0060 and MEAL 0015) as an alternative to the CCRFCDD facility in Evergreen Avenue (MEAP 000). MWH developed these plans to the 90% design level and was in the process of preparing a Master Plan Amendment for the new system in Alta Drive. CCRFCDD tasked Construction Claims and Management Consulting (CCMC) to review the 90% plans. CCMC identified 16 areas throughout the proposed alignment with critical problems. Three of the primary problems encountered were: 1) numerous utility relocations due to proximity of storm drain alignment, 2) construction phasing causing traffic closures for extensive periods of time, and 3) increase costs due to construction means and method limitations. Based upon the CCMC review, it was determined by CCRFCDD and CLV that alternatives to the 90% plans be developed.

CLV believes that a better alternative than the total reconstruction of the existing facility in Alta Drive would be to reduce flows in Alta Drive by diverting 430 cfs at Lorenzi Street (north) to the Rainbow Detention Basin and increasing the storage within the basin. Additionally we would be providing a lateral in Jones Boulevard south of Alta to Evergreen, and replacing a portion of the existing Alta storm drain that has a pipe capacity restriction from Easy Street to approximately 600-feet west of Decatur Boulevard. This alternative provides a better utilization of the existing facilities while providing alternative protection to the neighborhoods from the existing flooding problem in this area.

III. HYDROLOGIC ANALYSIS

The concept is to add approximately 430 cfs to the existing Rainbow Detention Basin from the Meadows Alta Parallel watershed (see Figure 1). The 40-foot depth of the detention basin allows for the facility extension in Lorenzi Street to go under the existing sewer, waterlines and other utilities within Westcliff Drive. This flow diversion has a significant impact on reducing the size of downstream facilities within Alta Drive to the east.

A review of the Rainbow Detention Basin HEC-1 model combined with the Meadows Alta Parallel HEC-1 showed the potential for adding flows to the Rainbow Detention Basin (see Appendix B). Based upon the existing grades at Lorenzi Street and Westcliff Drive, the additional flow cannot be accommodated without changing the detention basin configuration and/or modifying the Lorenzi Street and Westcliff Drive intersection improvements. The basin design would have to be enlarged to provide additional storage with the added flows from Alta Drive. The enlarged basin would need to have the same 100-year water surface elevation as the existing condition to prevent flows from bubbling out of the existing trench drain system at the Lorenzi Street and Westcliff Drive intersection. This could be accomplished by reducing the basin side slopes from 3:1 down to 1.5:1. The grading of the side slopes would add approximately 31 acre-feet of additional storage. Reducing the basin slopes will require slope stability work to protect the basin and adjacent roadways. The Rainbow Detention Basin was not designed with the concept of using this basin as a multi-use drainage facility and therefore the reduction in the basin side slopes will not have a negative impact on the public use. The following information is based upon the HEC-1 results for the existing detention basin condition and a revised model with the added Alta Drive flows being diverted to the basin.

HEC-1 Results	Rainbow Detention Basin Volume (acre-feet)	Rainbow Detention Basin Inflow (cfs)	Rainbow Detention Basin Water Surface Elevation
Q 100 – Existing	48	840	2383.62
Q 500 – Existing	65	1054	2388.47
Spillway – Existing	80		2391.70
Q 100 w/Alta flow (430 cfs Diversion)	79	1199	2383.48 (DB with 1.5:1 ss)

The HEC-1 models looked at the detention basin as a single basin while the physical basin consists of two basins that are linked together. A detailed hydraulic model will be completed in the design phase based upon the topography of the “As-Built” construction of the basins and recommended design modifications that will best serve the capacity needs.

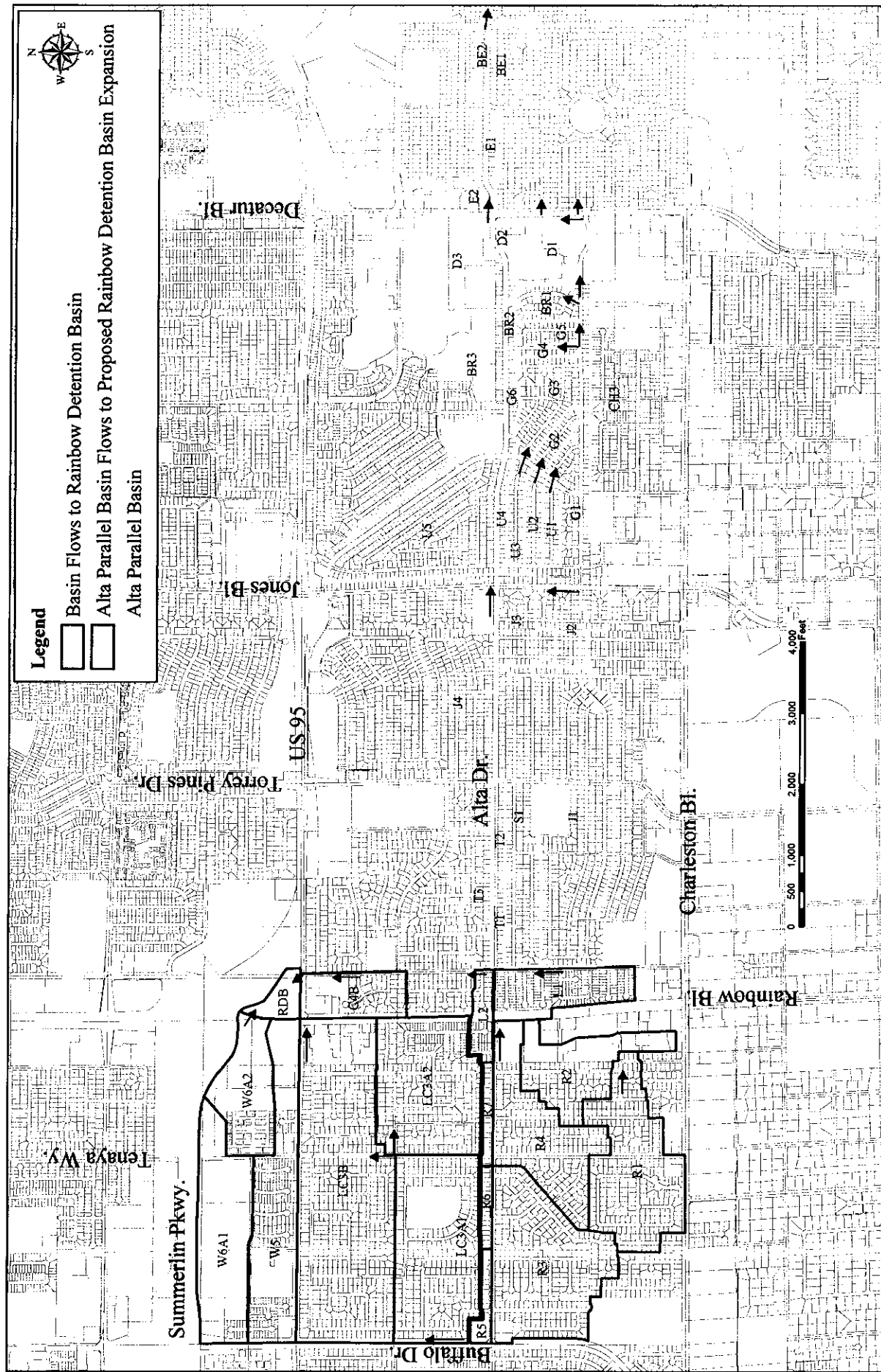


Figure 1 : HEC-1 Basin Map

At: comanypromote/Qualcomm The Basin/Figure 1

The addition of the 430 cfs from the Lorenzi Street/Alta Drive intersection into the recommended expansion of the detention basin will be designed so as to not negatively impact the original Rainbow Detention Basin design parameters. Therefore, the original protection above the 100-year event would be maintained within the detention basin with no impact to the US-95 improvements. The Nevada Department of Transportation has been contacted and is in agreement with the proposed modifications to the Rainbow Detention Basin. A copy of the Nevada Department of Transportation's concurrence for the proposed modifications to the Rainbow Detention Basin is included as Appendix A.

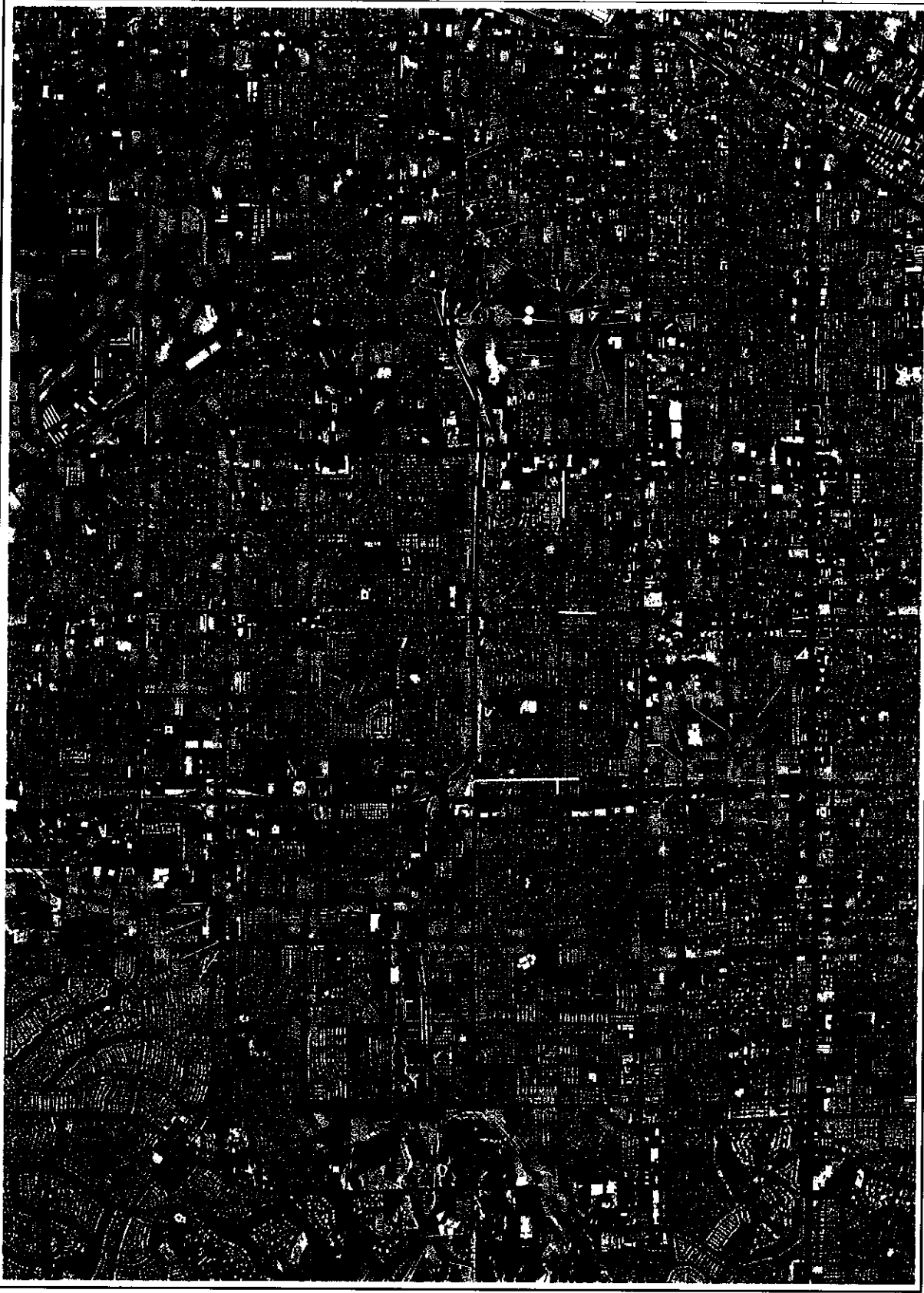
The removal of the 430 cfs from the Meadows Alta Parallel watershed at Lorenzi Street allows for the construction of the proposed downstream lateral in Jones Boulevard south of Alta to Evergreen, while maintaining the same level of storm drain protection within the existing Alta Drive facility. The proposed replacement of a portion of the existing Alta storm drain (that has a pipe capacity restriction) from Easy Street to approximately 600-feet west of Decatur Boulevard will provide increased protection to the established neighborhoods during storm events by maintaining the upstream and downstream pipe capacity.

IV. PROPOSED ALIGNMENT MODIFICATIONS TO THE MASTER PLAN

Figure 12A is a reproduction of Figure 12 from the 2002 MPU showing the revised facilities (in yellow) in relation to the 2002 MPU. Tables 1 and 2 present the Affected 2002 MPU Facilities and the Amended Facilities, respectively. With this amendment, the Rainbow Detention Basin will be upsized to accept the flow being diverted at the Alta Drive/Lorenzi Street intersection.

Several facilities are necessary to collect flows that were not included in the 2002 MPU. These improvements include the following:

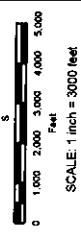
- Lorenzi Street (LCCP 0420). This lateral collects approximately 430 cfs from the Alta Drive/Lorenzi Street intersection and diverts it to the Rainbow Detention Basin.
- Rainbow Detention Basin Expansion (LCCP 0460). This basin expansion will accept the flow of approximately 430 cfs from the Alta Drive/Lorenzi Street intersection that is being added into the Rainbow Detention Basin.
- Jones Boulevard – south (MEAL 0130). This lateral replaces the facility identified by MEAP 0172 and collects 200 cfs from the intersection of Jones Boulevard and Evergreen Avenue.
- Alta Drive (MEAL 0100). This facility replaces the existing storm drain to provide the additional capacity of 120 cfs to match available upstream and downstream pipe capacities.



2002
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE

LEGEND

- Ultimate Development Boundary
- Existing Facilities
- Category A Proposed Facilities
- Category B Proposed Facilities
- Local Existing Facilities
- Local Proposed Facilities
- Amendment Proposed Facilities
- Detention Basin
- Culvert
- Bridge
- Pipeline
- Unfed Channel
- Fed Channel
- XXXX Mile
- Natural Wash
- Ditch Separator



1/2" = 1"

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

FLOOD CONTROL FACILITIES
FIGURE F-12A



Due to the proposed facilities in Jones Boulevard and the Alta Drive storm drain replacement segment, the facilities identified as MEAL 0160 and MEAL 0060 will be renumbered (see Figure 2).

Table 1. Facilities Inventory - Affected 2002 MPU Facilities

ID / River Mile	Status	Facility Description	Length (ft)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq mi)	Channel Slope (%)
MEAL		MEADOWS ALTA						
0060	E	60" RCP	5200	461	CAL08-C	SW3SC	0.77	2.81
0160	E	36" RCP	2600	418	CAL01A	SW3SC	0.36	1.22
LCCP		LAS VEGAS CREEK CHANNEL - PARALLEL SYSTEM						
0454	P2	55 ac-ft Rainbow Detention Basin*		826	RAINBWIN	SW3SC	0.75	
MEAP		MEADOWS ALTA PARALLEL						
0000	P1	8' X 6' RCB	8400	747	CAL09-C	SW3SC	0.87	1.25
0172	P1	8' X 7' RCB	1100	507	CAL04-C	SW3SC	0.53	0.30

*The 2002 MPU storage volume does not reflect the approved HEC-1 model from the US-95 Widening Project prepared by VTN

Table 2. Facilities Inventory - Amended Facilities

ID / River Mile	Status	Facility Description	Length (ft)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq mi)	Channel Slope (%)
MEAL		MEADOWS ALTA						
0160	E	36" RCP	2,300	149	CS1	Alta II rev 2	0.12	1.25
0150	E	60" RCP	290	179	CJ3	Alta II rev 2	0.15	1.40
0130	P1	66" RCP	1,400	198	CJ2	Alta II rev 2	0.18	0.40
0120	E	60" RCP	3,500	637	CCU5	Alta II rev 2	0.57	1.00
0100	P1	6' X 5' RCB	900	673	CBR2	Alta II rev 2	0.58	1.00
0070	E	60" RCP	900	673	CBR2	Alta II rev 2	0.58	1.00
0060	E	60" RCP	800	738	CBR3	Alta II rev 2	0.65	2.00
LCCP		LAS VEGAS CREEK CHANNEL - PARALLEL SYSTEM						
0460	P1	31 ac-ft Rainbow Detention Basin Expansion		1,199	C5A	RBD rev C	1.05	
0420	P1	10' X 5' RCB	3,600	431	CCL2D	RDB rev C	0.41	0.30

V. COST ESTIMATES

A cost estimate for the Affected 2002 MPU Facilities is included in Table 3 and of the Amended Facilities is shown in Table 4. The costs shown in these tables are based on the cost-estimating tool from the 2002 MPU. The proposed facility sizes were estimated based upon normal depth calculations (see Appendix C).

The Amended Facilities are estimated to cost \$6.2 million, the 2002 MPU Facilities are estimated at \$11.3 million, and MWH's cost estimate is \$16.4 million (which includes the 30% constructability increase recommended with the CCMC review).

The Amended Facilities are approximately \$5.1 million less than the 2002 MPU Facilities in 2002 dollars. Inflating the MPA cost estimate according to the procedure for the Ten-Year Construction Program yields a cost of \$9.0 million in 2006 dollars. Compared to MWH's cost estimate for the MPU facilities the MPA is \$7.4 million less.

Copies of the cost estimate for each of the Amended Facilities, generated by the 2002 MPU cost-estimating tool, are included in Appendix D.

VI. RECOMMENDATIONS AND CONCLUSIONS

This Amendment recommends revisions to the Meadows Alta Parallel facility and construction of associated conveyance facilities within the CCRFCD 2002 MPU. The following proposed facilities provide a more cost effective and constructible project while adding protection to the established neighborhoods between Alta Drive and Evergreen Avenue:

- Expansion of the Rainbow Detention Basin
- Lorenzi Street – Alta Drive to the Rainbow Detention Basin
- Jones Boulevard (south) – Alta Drive to Evergreen Avenue
- Alta Drive, Pipe Capacity Replacement - Easy Street to 600 feet west of Decatur Boulevard

The proposed amendment to the MPU sets forth the most effective structural and regulatory means for correcting the existing regional flooding problem within the area consistent with the general principles set forth in subsection 3 of NRS 543.590. These facilities do not adversely affect the continued implementation of the MPU.

Table 3. Cost Report - Affected 2002 MPU Facilities

Central Watershed Construction Cost						
ID / River Mile	E/P	Facility Description	Design & Admin (\$ x 1000)	Land Acquisition (\$ x 1000)	Construction Cost (\$ x 1000)	Total Cost (\$ x 1000)
MEAP		MEADOWS ALTA PARALLEL*				
0000	P1	8' X 6' RCB	1,306	0	8,589	9,895
0172	P1	8' X 7' RCB	184	0	1,207	1,391
		Project Total	1,490	0	9,796	11,286
		TOTAL	1,490	0	9,796	11,286

* The 90% design plans prepared by MWH had a cost estimate of \$16.4 million (includes CCMC increase).

Table 4. Cost Report - Amended Facilities

Central Watershed Construction Cost						
ID / River Mile	E/P	Facility Description	Design & Admin (\$ x 1000)	Land Acquisition (\$ x 1000)	Construction Cost (\$ x 1000)	Total Cost (\$ x 1000)
MEAL		MEADOWS ALTA				
0160	E	36" RCP				
0150	E	60" RCP				
0130	P1	66" RCP	104	0	684	787
0120	E	60" RCP				
0100	P1	6' X 5' RCB	113	0	740	853
0070	E	60" RCP				
0060	E	60" RCP				
		Project Total	217	0	1,424	1,640
LCCP		LAS VEGAS CREEK CHANNEL - PARALLEL SYSTEM				
0460	P1	31 ac-ft Rainbow Detention Basin Expansion	24	0	151	175
0420	P1	10' X 5' RCB	573	0	3,765	4,338
		Project Total	597	0	3,916	4,512
		TOTAL	813	0	5,339	6,152

VII. REFERENCES

Clark County Regional Flood Control District 2002 Las Vegas Valley Flood Control Master Plan Update, prepared by PBS&J, G.C. Wallace, Inc., and the Louis Berger Group, Inc.

Final Overall Project Drainage Design Report for US 95 Widening, May 2003, prepared by VTN Nevada

Meadows Alta Parallel Project, Phase II Design Report, January 2005, prepared by MWH, Inc.

Alta-Meadows Storm Drain Project, 90% Submittal, January 2006, prepared by MWH, Inc.



State of Nevada
DEPARTMENT OF TRANSPORTATION
Hydraulics Section
1263 South Stewart Street, Rm. 113
Carson City, Nevada 89712

FAX COVER SHEET

DATE: 10/16/2006

TO: Peter Jackson

FAX NUMBER: 702-382-8551

PHONE NUMBER: 702-229-5266

FROM: Paul Frost
Number of Pages Transmittng
(Including Cover Sheet): 2

SUBJECT: Rainbow Basin/Alta SD

COMMENTS: Attached is the signed concurrence for the proposed modifications to the Rainbow Detention Basin. Please call if you have any questions. Paul

Nevada Department of Transportation - Hydraulics Section
Phone: (775) 888-7797
Fax: (775) 888-7177

DEVELOPMENT SERVICES CENTER



Public Works Department
Engineering Planning

731 S. Fourth Street
Las Vegas, NV 89101

Voice 702-229-6541
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Las Vegas City Council
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Mayor
Gary Ragsdale, Ward 3
Mayor Pro Tem
Larry Brown, Ward 4
Lawrence Weekly, Ward 3
Steve Wolfson, Ward 2
Lola Tortorici, Ward 1
Steven D. Ross, Ward 6

City Manager
Douglas A. Salby



1-800-4-A-VEGAS

September 27, 2006

Amir Soltani, P.E.
Nevada Department of Transportation
1263 S. Stewart Street
Carson City, NV 89712

RE: DRAINAGE MODIFICATIONS TO THE RAINBOW DETENTION
BASIN - PART OF THE US-95 WIDENING PROJECT
AMENDMENT TO THE 2002 MASTER PLAN UPDATE FOR THE
MEADOWS ALTA PARALLEL FACILITY

Dear Mr. Soltani:

The City of Las Vegas is requesting the Nevada Department of Transportation's concurrence for the Amendment to the 2002 Master Plan Update for the Meadows Alta Parallel Facility. The primary purpose of the Amendment to the Master Plan is to reduce a regional flooding problem south of the US-95 corridor in the area between Alta Drive and Evergreen Avenue where there are existing low points. The Master Plan Amendment (MPA) concept was discussed with Paul Frost, P.E. on Thursday September 14, 2006 to review the potential basin modifications at Rainbow/US-95.

The major component of the Master Plan Amendment is to provide a regional facility within the Lorenzi roadway alignment that will convey approximately 430 cfs from Alta Drive, north to the Rainbow Detention Basin. The Rainbow Detention Basin would be expanded to allow for the additional storage needed with the increased flow. The City of Las Vegas has enclosed a copy of the MPA for your use. Please return the signed concurrence for inclusion with the MPA request to the Clark County Regional Flood Control District.

Sincerely,

Robert Welch, P.E.
Flood Control Project Manager
Engineering Planning

10/13/06
Amir Soltani, P.E. Nevada Department of Transportation
NDOT Concurrence for Master Plan Amendment submittal. Date

cc:
Jorge Cervantes, P.E. - CLV
Randy Fultz, P.E. - CLV
Kevin Eubanks, P.E. - CCRFCD
Paul Frost, P.E. - NDOT
Valerie Flock, P.E. - CLV

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